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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
SAYOC, EMMANUEL	

ART UNIT	PAPER NUMBER
3746	

DATE MAILED: 09/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/092,524	KAGAWA ET AL.	
	Examiner	Art Unit	
	Emmanuel Sayoc	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 March 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 March 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The title should refer to at least the principle inventive concept of the claimed invention.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker (U.S. 4,558,996) and in further view of Lepak (U.S. 3,644,068), referenced by Tsukada (U.S. 4,969,808).

With respect to claim 1, Becker in Figure 6, teaches a roller pump (5) comprising a housing (12a, 14, 52, 28) having a cylindrical inner surface (62, 40, 63), a rotor (120) fixed to a drive shaft (104) placed at the central portion of the pump (5) housing (12a, 14, 52, 28), rollers (166) provided around the rotor, and a driver for driving the drive shaft (obvious but not shown). The rollers (166) press an elastic tube (270) installed between the rollers (166) and the inner surface of the pump housing (62, 40, 63) toward the inner surface to transfer a liquid in the elastic tube in a direction being rotated by the rotor (120) to move the place where the rollers (166) press the elastic tube (270).

The Becker device differs from the claimed invention in that there is no explicit teaching of a driver driving the drive shaft through a reduction gear. It was well known in the art at the time the invention was made to drive the roller pump with a motor coupled to a pump drive shaft via a gearbox. Lepak in Figure 1, teaches a roller pump with a drive shaft (30) driven by a motor (12) via a gear box (14). Further more it was also well known that in frequent cases the motor shaft rotates a lot faster than that desired of the drive shaft. It such cases it was common to use a reduction gear box in order to rotate the drive shaft at lower speeds and higher torque. Tsukada in Figure 1 teaches a roller pump with a motor (21) driven shaft (13) via a reduction gears (22). Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Becker device by, utilizing a reduction gear box, as taught by Lepak as referenced by Tsukada, in order to match the desired rotor drive speed given a stock motor. It is obvious that the pump housing (62, 40, 63) and the reduction gear are integrated into one body (they are assembled, fastened, and function as one component) and an output shaft (30). It is

obvious that reduction gearbox is fixed to the drive shaft of the rotor, otherwise the rotor would not function.

With respect to claim 5, a part of the inner surface of the pump housing (62, 40, 63) is composed of a semicircle (62) of which the center coincides with the center of the drive shaft (104), and another part of the inner surface is composed of a partial circles (63) of which the center is shifted from the center of the drive shaft (104). The length of radius of the part (63) is larger than the semicircle (62) and the partial circles (63) of the inner surface. Each end portions of the semicircle (62) are respectively connected to the end portions of the partial circles (63). The partial circle (63) is made to be a form suitable to be connected to an inlet slot (22) for attaching an inlet portion (18) of the elastic tube (270), and to an outlet slot (20) for attaching an outlet portion (shown not enumerated) of the elastic tube (270).

5. Claims 7, and 11, are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker, as modified by Lepak referenced by Tsukada, as applied to claims 1, and 5, and in further view of Ohira et al. (JP 60088885 A).

With respect to claim 7, Becker, as modified by Lepak and Tsukada sets forth a device as described above, which is substantially analogous to the claimed invention. The Becker, as modified by Lepak and Tsukada device differs from the claimed invention in that there is no explicit teaching of a rotatable lever on the inlet and outlet slots of the pump for clamping the inlet and outlet portion s of the flexible tube. Ohira et al., in Figures 1 and 2, teaches an analogous roller pump that it was well known to use clamp levers to for clamping the inlet and outlet portion s of the flexible tube. Ohira et al. teaches an inlet slot (shown not enumerated) provided with a lever (9) for pressing the inlet portion into the inlet slot to hold the inlet portion

in the inlet slot. The lever is rotated perpendicularly to the axis of the elastic tube by a spring (closing spring 13 of lock member 11) force to press the inlet portion to the elastic tube. An upper end portion of the lever is tilted relative to the vertical axis. The inlet portion of the flexible tube is attached to the pump housing pushed downward through a place between the upper end portion and the inlet slot. The same exists for the outlet side of the pump. See examiner's marked up Figure 2.

Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Becker, as modified by Lepak and Tsukada, device by incorporating the lever system, as taught by Ohira et al., in order to obtain an easy releasable means of clamping the flexible tube in place a the inlet and the outlet.

6. Claims 1, and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beller et al. (U.S. 20020001527 A1) and in further view of Lepak, referenced by Tsukada.

With respect to claim 1, Beller et al. in Figure 2, teaches a roller pump (1) comprising a housing (see Figure 3) having a cylindrical inner surface (11), a rotor (12) fixed to a drive shaft (shown not enumerated) placed at the central portion of the pump (1) housing (see Figure 3), rollers (shown not enumerated) provided around the rotor, and a driver for driving the drive shaft (obvious but not shown). The rollers press an elastic tube (13) installed between the rollers and the inner surface of the pump housing toward the inner surface to transfer a liquid in the elastic tube in a direction being rotated by the rotor (12) to move the place where the rollers press the elastic tube (13).

The Beller et al. device differs from the claimed invention in that there is no explicit teaching of a driver driving the drive shaft through a reduction gear. It was well known in the art

at the time the invention was made to drive the roller pump with a motor coupled to a pump drive shaft via a gearbox. Lepak in Figure 1, teaches a roller pump with a drive shaft (30) driven by a motor (12) via a gear box (14). Further more it was also well known that in frequent cases the motor shaft rotates a lot faster than that desired of the drive shaft. It such cases it was common to use a reduction gear box in order to rotate the drive shaft at lower speeds and higher torque. Tsukada in Figure 1 teaches a roller pump with a motor (21) driven shaft (13) via a reduction gears (22). Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Beller et al. device by, utilizing a reduction gear box, as taught by Lepak as referenced by Tsukada, in order to match the desired rotor drive speed given a stock motor. It is obvious that the pump housing (62, 40, 63) and the reduction gear are integrated into one body (they are assembled, fastened, and function as one component) and an output shaft (30). It is obvious that reduction gearbox is fixed to the drive shaft of the rotor, otherwise the rotor would not function.

With respect to claim 3, a part of the inner surface of the pump housing is composed of a semicircle (bottom quarter of support 11) of which the center coincides with the center of the drive shaft, and another part of the inner surface is composed of a partial circle (left quarter of support) of which the center is shifted from the center of the drive shaft. The length of radius of the partial circle (left quarter of support) is equal to the semicircle and the partial circle (left quarter of support) of the inner surface. Each end portions of the semicircle and each end of the partial circle (left quarter of support) are connected by each of tangential lines extending from each of the end portions of the semicircle toward each to the end portions of the partial circle (left quarter of support) respectively. The partial circle (left quarter of support) is made to be a

form suitable to be connected to an inlet slot for attaching an inlet portion of the elastic tube (13), and to an outlet slot for attaching an outlet portion (shown not enumerated) of the elastic tube (13). See examiner's marked up Figure 2 for clarification.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beller et al., as modified by Lepak referenced by Tsukada, as applied to claim 3, and in further view of Ohira et al.

With respect to claim 9, Beller et al. as modified by Lepak and Tsukada sets forth a device as described above, which is substantially analogous to the claimed invention. The Becker, as modified by Lepak and Tsukada device differs from the claimed invention in that there is no explicit teaching of a rotatable lever on the inlet and outlet slots of the pump for clamping the inlet and outlet portion s of the flexible tube. Ohira et al., in Figures 1 and 2, teaches an analogous roller pump that it was well known to use clamp levers to for clamping the inlet and outlet portion s of the flexible tube. Ohira et al. teaches an inlet slot (shown not enumerated) provided with a lever (9) for pressing the inlet portion into the inlet slot to hold the inlet portion in the inlet slot. The lever is rotated perpendicularly to the axis of the elastic tube by a spring (closing spring 13 of lock member 11) force to press the inlet portion to the elastic tube. An upper end portion of the lever is tilted relative to the vertical axis. The inlet portion of the flexible tube is attached to the pump housing pushed downward through a place between the upper end portion and the inlet slot. The same exists for the outlet side of the pump. See examiner's marked up Figure 2.

Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Beller et al., as modified by Lepak and Tsukada, device by

incorporating the lever system, as taught by Ohira et al., in order to obtain an easy releasable means of clamping the flexible tube in place a the inlet and the outlet.

8. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beller et al., as modified by Lepak and Tsukada, as applied to claim 1, and in further view of Knapp et al. (U.S. 5,387,088), and Suzuki et al.

With respect to claims 2, and 4, Beller et al., as modified by Lepak and Tsukada sets forth a device as described above, which is substantially analogous to the claimed invention. The Becker (U.S. 4,558,996), as modified by Lepak and Tsukada device differs from the claimed invention in that there is no explicit teaching of the motor being a stepping/stepper motor provided with a rotation sensor and being roll controllable. Knapp et al. teaches that is wall well known in the art to use a stepping motor to drive a roller pump due to the stepping motors simplicity, reliability, and ease in control – see column 3 line 44. Furthermore Suzuki et al. in Figure 1 teaches a stepping motor drive unit with a rotation speed detection circuit (105). Such a speed sensor/circuit is required in application where motor speed must be monitored for automation or control purposes. Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Beller et al., as modified by Lepak and Tsukada, device by utilizing a stepping motor with a rotation sensor, as taught by Knapp et al. and Suzuki et al., in order to obtain a well-known, reliable, and easy to control drive means with the ability to monitor and accordingly automate or adjust motor speed.

With respect to claim 4, a part of the inner surface of the pump housing is composed of a semicircle (bottom quarter of support 11) of which the center coincides with the center of the drive shaft, and another part of the inner surface is composed of a partial circle (left quarter of

support) of which the center is shifted from the center of the drive shaft. The length of radius of the partial circle (left quarter of support) is equal to the semicircle and the partial circle (left quarter of support) of the inner surface. Each end portions of the semicircle and each end of the partial circle (left quarter of support) are connected by each of tangential lines extending from each of the end portions of the semicircle toward each to the end portions of the partial circle (left quarter of support) respectively. The partial circle (left quarter of support) is made to be a form suitable to be connected to an inlet slot for attaching an inlet portion of the elastic tube (13), and to an outlet slot for attaching an outlet portion (shown not enumerated) of the elastic tube (13). See examiner's marked up Figure 2 for clarification.

9. Claims 2, and 6, are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker, as modified by Lepak and Tsukada, as applied to claim 1, and in further view of Knapp et al. (U.S. 5,387,088), and Suzuki et al. (U.S. 5,929,589).

With respect to claims 2, 6, Becker, as modified by Lepak and Tsukada set forth a device as described above, which is substantially analogous to the claimed invention. The Becker (U.S. 4,558,996), as modified by Lepak and Tsukada device differs from the claimed invention in that there is no explicit teaching of the motor being a stepping/stepper motor provided with a rotation sensor and being roll controllable. Knapp et al. teaches that is wall well known in the art to use a stepping motor to drive a roller pump due to the stepping motors simplicity, reliability, and ease in control – see column 3 line 44. Furthermore Suzuki et al. in Figure 1 teaches a stepping motor drive unit with a rotation speed detection circuit (105). Such a speed sensor/circuit is required in application where motor speed must be monitored for automation or control purposes. Therefore it would have been obvious to one of ordinary skill in the art at time the invention was

made to modify the Becker, as modified by Lepak and Tsukada, device by utilizing a stepping motor with a rotation sensor, as taught by Knapp et al. and Suzuki et al., in order to obtain a well-known, reliable, and easy to control drive means with the ability to monitor and accordingly automate or adjust motor speed.

With respect to claim 6, a part of the inner surface of the pump housing (62, 40, 63) is composed of a semicircle (62) of which the center coincides with the center of the drive shaft (104), and another part of the inner surface is composed of a partial circles (63) of which the center is shifted from the center of the drive shaft (104). The length of radius of the part (63) is larger than the semicircle (62) and the partial circles (63) of the inner surface. Each end portions of the semicircle (62) are respectively connected to the end portions of the partial circles (63). The partial circle (63) is made to be a form suitable to be connected to an inlet slot (22) for attaching an inlet portion (18) of the elastic tube (270), and to an outlet slot (20) for attaching an outlet portion (shown not enumerated) of the elastic tube (270).

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Becker, as modified by Lepak, Tsukada, Knapp, and Suzuki et al., as applied to claims 2, and 6, and in further view of Ohira et al. (JP 60088885 A).

With respect to claim 12, Becker, as modified by Lepak, Tsukada, Knapp, and Suzuki et al., set forth a device as described above, which is substantially analogous to the claimed invention. The Becker, as modified by Lepak and Tsukada device differs from the claimed invention in that there is no explicit teaching of a rotatable lever on the inlet and outlet slots of the pump for clamping the inlet and outlet portion s of the flexible tube. Ohira et al., in Figures 1 and 2, teaches an analogous roller pump that it was well known to use clamp levers to for

clamping the inlet and outlet portion s of the flexible tube. Ohira et al. teaches an inlet slot (shown not enumerated) provided with a lever (9) for pressing the inlet portion into the inlet slot to hold the inlet portion in the inlet slot. The lever is rotated perpendicularly to the axis of the elastic tube by a spring (closing spring 13 of lock member 11) force to press the inlet portion to the elastic tube. An upper end portion of the lever is tilted relative to the vertical axis. The inlet portion of the flexible tube is attached to the pump housing pushed downward through a place between the upper end portion and the inlet slot. The same exists for the outlet side of the pump. See examiner's marked up Figure 2.

Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Becker., as modified by Lepak, Tsukada, Knapp, and Suzuki et al.,, device by incorporating the lever system, as taught by Ohira et al., in order to obtain an easy releasable means of clamping the flexible tube in place a the inlet and the outlet.

11. Claims 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker (U.S. 4,558,996), as modified by Lepak, Tsukada, Knapp, and Suzuki et al., as applied to claim 2, and in further view of Ohira et al. (JP 60088885 A).

With respect to claim 8, Becker, as modified by Lepak, Tsukada, Knapp, and Suzuki et al., set forth a device as described above, which is substantially analogous to the claimed invention. The Becker, as modified by Lepak, Tsukada, Knapp, and Suzuki et al., device differs from the claimed invention in that there is no explicit teaching of a rotatable lever on the inlet and outlet slots of the pump for clamping the inlet and outlet portion s of the flexible tube. Ohira et al., in Figures 1 and 2, teaches an analogous roller pump that it was well known to use clamp levers to for clamping the inlet and outlet portion s of the flexible tube. Ohira et al. teaches an

inlet slot (shown not enumerated) provided with a lever (9) for pressing the inlet portion into the inlet slot to hold the inlet portion in the inlet slot. The lever is rotated perpendicularly to the axis of the elastic tube by a spring (closing spring 13 of lock member 11) force to press the inlet portion to the elastic tube. An upper end portion of the lever is tilted relative to the vertical axis. The inlet portion of the flexible tube is attached to the pump housing pushed downward through a place between the upper end portion and the inlet slot. The same exists for the outlet side of the pump. See examiner's marked up Figure 2.

Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Becker, as modified by Lepak, Tsukada, Knapp, and Suzuki et al., device by incorporating the lever system, as taught by Ohira et al., in order to obtain an easy releasable means of clamping the flexible tube in place a the inlet and the outlet.

12. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beller et al., as modified by Lepak referenced by Tsukada, as applied to claim 4, and in further view of Ohira et al.

With respect to claim 9, Beller et al., as modified by Lepak, Tsukada, Knapp et al., and Suzuki et al., set forth a device as described above, which is substantially analogous to the claimed invention. The Becker, as modified by Lepak, Tsukada, Knapp et al., and Suzuki et al., device differs from the claimed invention in that there is no explicit teaching of a rotatable lever on the inlet and outlet slots of the pump for clamping the inlet and outlet portion s of the flexible tube. Ohira et al., in Figures 1 and 2, teaches an analogous roller pump that it was well known to use clamp levers to for clamping the inlet and outlet portion s of the flexible tube. Ohira et al. teaches an inlet slot (shown not enumerated) provided with a lever (9) for pressing the inlet

portion into the inlet slot to hold the inlet portion in the inlet slot. The lever is rotated perpendicularly to the axis of the elastic tube by a spring (closing spring 13 of lock member 11) force to press the inlet portion to the elastic tube. An upper end portion of the lever is tilted relative to the vertical axis. The inlet portion of the flexible tube is attached to the pump housing pushed downward through a place between the upper end portion and the inlet slot. The same exists for the outlet side of the pump. See examiner's marked up Figure 2.

Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Beller et al., as modified by Lepak, Tsukada, Knapp et al., and Suzuki et al., device by incorporating the lever system, as taught by Ohira et al., in order to obtain an easy releasable means of clamping the flexible tube in place a the inlet and the outlet.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are cited to further show the state of the art with respect to peristaltic roller pumps.

U.S. Pat. 4,969,808 to Tsukada

U.S. Pat. 3,644,068 to Lepak

U.S. Pat. 3,885,894 to Sikes

U.S. Pat. GB 2051253 A to Gustafsson

U.S. Pat. 3,963,023 to Hankinson

U.S. Pat. 5,897,300 to Luedtke

Contact Information

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Sayoc whose telephone number is (703) 305-0054. The examiner can normally be reached on M-F 8 A.M. - 6 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu can be reached on (703)308-2675. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Emmanuel Sayoc
Examiner
Art Unit 3746

ECS

JUSTINE R. YU
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6/25/04